Responsive Parenting
for Early Obesity Prevention

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Throughout history, food scarcity was a threat to child health, and is still a threat to many…

- High risk of child morbidity, mortality
- Not enough food
- Availability unpredictable
- Food choice limited
- Low palatability
- Low energy, nutrient density
Traditional parenting practices evolved to promote child intake, health in the context of food scarcity

- Feeding the “default” response to crying
- Provide large portions when possible
- Force, pressure children to eat in the absence of hunger
- “A big baby = A healthy baby”
- Traditional practices and attitudes persist
- Can promote rapid weight gain and increase obesity risk
Rapid weight gain in infancy predicts...

- Higher BMI and fat mass in childhood\(^1\)
- Increased risk of obesity in adulthood\(^2\)
- Higher blood pressure in childhood\(^3\) and adulthood\(^4\)
- Reduced physical fitness in childhood\(^5\)
- Increased metabolic risk factors\(^6\)

An alternative to traditional feeding practices: Responsive parenting

- Prompt, developmentally appropriate
- Contingent on child’s behavior, needs
- Fosters the development of self regulation
- Promotes cognitive, social, emotional development

Three step process
1. Observation
2. Interpretation
3. Action

Can responsive parenting reduce rapid weight gain, obesity risk in infancy?
Is parenting modifiable?
Responsiveness can be taught to caregivers

- Evidence from randomized controlled trials shows that responsive parenting is modifiable

- Parenting intervention (PALS) increased mothers’ contingent responsiveness compared to control (DAS)*

*Landry et al., Dev Psychol, 2006
Responsive parenting promotes many aspects of children’s development

- Responsive parenting positively associated with cognitive, social, and emotional growth in children*

- Non-responsive, controlling parenting is related to adverse outcomes*

*Eshel et al., *Bull World Health Organ*, 2006; Landry et al., *Dev Psychol*, 2001*
Responsive parenting promotes self regulation

- Self regulation affects cognitive, social, and emotional development

- Self regulation: self-control, will power, effortful control, delay of gratification, emotion regulation, executive function, and inhibitory control*

- Multiple aspects of self regulation important in avoiding excessive intake in our current environment

*Anzman-Frasca et al., Trans Issues Psychol Sci, 2015

Can responsive parenting reduce obesity risk?
Two RCTs, SLIMTIME, INSIGHT: Can responsive parenting reduce obesity risk in infancy?*

- RCTs with first-time mothers and infants
  - SLIMTIME (N= 160) 2x2 design, 2 home visits, 1 y outcome
  - INSIGHT (N=279) 2 arm RCT, 4 home visits 1st y, 1, 3 y outcomes

- Primary outcomes:
  - weight gain in infancy
  - weight status at 1 y, 3 y

- Secondary outcomes:
  - parenting behaviors
  - sleep duration, night feedings
  - feeding-to-soothe
  - “finishing the bottle”
  - infant emotion regulation

*Paul et al. Obesity 2012; Paul et al. BMC Peds, 2014; Savage et al. Pediatric Academic Society, 2015 supported by NIDDK
Teaching responsive parenting to prevent obesity: Findings from SLIMTIME, INSIGHT

**Intervention**
- Responsive parenting
  - Prompt
  - Contingent
  - Needs-based

**Secondary outcomes**
- Self regulation
  - Sleeping
  - Fussing
  - Feeding

**Primary outcomes**
- Slower infant weight gain
  - Lower W/L @ 1 y
  - Lower % > 95th %ile BMI @ 3 y
SLIMTIME: Mothers in intervention less likely to encourage infants to “finish the bottle”
SLIMTIME: Parenting intervention infants were better able to regulate their negative emotions*

- Compared to control, parenting infants were better able to recover from being upset, fussing, crying during a toy removal task

*Anzman-Frasca, Stifter, Paul, & Birch 2011
SLIMTIME: Infants in parenting intervention took fewer nighttime feedings*

*Paul et al., *Obesity*, 2012
SLIMTIME: Infants in parenting intervention slept longer at night vs. controls*

Longer sleep duration is associated with lower obesity risk

*Paul et al., *Obesity*, 2012
Weight-for-length at 1 y lower in infants receiving both SLIMTIME intervention components*

*Paul et al., *Obesity*, 2012
Early Insight: Helping parents raise healthy babies in the first 4 months

Your Baby is Unique!
- Learn to read your baby’s signals
- Try different soothing strategies
- Use different routines for the day and night

Main responsive parenting intervention themes:
- Recognition and appropriate response to infant hunger and fullness cues
- Alternatives to feeding in order to soothe infant
- Promoting adequate sleep, self-soothing, “settling”
- Developmentally appropriate introduction of solid foods and portion sizes
INSIGHT: Infants in parenting intervention have less rapid weight gain* from birth to 28 weeks*

Based on conditional weight gain (CWG), with mean of 0 CWG score $>0 = \text{faster weight gain}; <0 = \text{slower weight gain}$

Savage et al. presented at PAS meeting, 2015; *In Preparation*, 2015
INSIGHT: Infants in parenting intervention had lower weight-for-length percentiles at age 1 y*

*Kolmogorov Smirnov Two-Sample Test p<0.01;
Savage et al. presented at PAS meeting, 2015; In Preparation, 2015
Responsive parenting intervention efficacious: Infant behavior, growth, weight outcomes

- Less feeding to soothe, bottle emptying
- Longer night sleep duration & fewer night feedings
- More self-soothing, regulation of negative emotion
- Less rapid weight gain and lower weight status at 1 year

- Collateral benefits on other aspects of child development?
- Generalizability to higher risk samples?
- More resource efficient, effective designs?
- Dose? Timing? Mode of intervention delivery?
- Longer term effects?
Parenting infants less likely to experience faster weight gain than safety control*